REMARKS

By this amendment, claims 1-3, 5-20, and 22-31 are pending; claims 4 and 21 have been previously are canceled. Claims 30 and 31 are newly presented. No new matter is introduced.

The Office Action mailed March 25, 2004 rejected claims 1-3, 5-20 and 21-29 are rejected as obvious under 35 U.S.C. § 103 based on *Simeonidou et al.* (US 6,249,620) in view of *Liu et al.* (US 5,914,798) and further in view of *Vrenjak* (US 5,063,523).

Independent claims 1 and 18 recite "selectively receiving alarm signals from at least one of the first line terminating equipment and the second line terminating equipment via a respective one of binary alarm interfaces coupling the first line terminating equipment and the second line terminating equipment, each of the **binary alarm interfaces directly providing alarm and status condition** information represented by the alarm signals without embedding the alarm and status condition information in traffic-bearing signals." Claim 10 recites "a binary alarm interface coupled to the line terminating equipment, the **binary alarm interface directly providing alarm and status condition information** without embedding the alarm and status condition information in a traffic-bearing signal." Claim 27 recite the feature of "means for monitoring a plurality of physical connections between a first line terminating equipment and a second line terminating equipment of the submarine cable network, the monitoring means including binary interfaces coupled the first line terminating equipment and the second line terminating equipment, each of the **binary alarm interfaces directly providing alarm and status condition information** without embedding the alarm and status condition information in traffic-bearing signals."

The Office Action now introduces a third reference into the combination, that of *Vrenjak*, for a supposed teaching of "transmitting alarm signal using out of band secondary channel" (page 3 of the Office Action). In support of the obviousness rejection, the Office Action asserts that

"there must be an interface unit which receive the alarm signal." Applicant does not contest this assertion, but maintains that the proposed combination of *Simeonidou et al.*, *Liu et al.*, and *Vrenjak* fails to disclose use of the claimed binary alarm interface. What the Examiner continues to ignore is the specific claimed feature of a "**binary** alarm interface." It is improper to ignore qualifiers in the claim terms such as "**binary**." See *Apple Computer, Inc. v. Articulate Systems, Inc.*, 234 F.3d 14 (Fed. Cir. 2000) (holding that the district court "cannot read the qualifier 'help' out the definition of 'help access window'" of claim 2).

As pointed out it Applicant's previous response dated December 2, 2003, the claimed binary alarm interface has numerous attendant advantages over the traditional network management systems, particularly systems deployed to monitor a submarine cable network. For convenience, this is reiterated as follows. Applicant's Specification, paragraphs [24] and [25], makes clear the advantages of binary alarm interfaces, which refer to a means for communicating alarms and status conditions (such as equipment malfunctions, signal degradations, etc.) directly from one network element to another, as opposed to embedding such information in the overhead of a traffic-bearing signal, such as along SONET STM-N interface 112. A binary interface may provide more immediate and dependable communication of alarm and status information, especially if other robustness measures, such as error-tolerant coding schemes, are applied to the binary interface 111, 113. The binary interface 111, 113 yields a faster response time than the usual embedded interface (in the order of microseconds versus milliseconds, for example). The binary interface 111, 113 sends to the switching system controller; in turn, the switching system controller analyzes the fault and refers to the lookup tables in the database 127, 131 rather than the embedded signal analyzing the fault and sending the message (delayed by the analysis time) to the switching system controller. Since the switching system 101, 109 must perform the root cause analysis anyway (fault conditions), the embedded analysis is a redundant event. Given the

advantages of the binary interface 111, 113, the protect switching or restoration mechanisms of the system 101, according to one embodiment of the present invention, rely primarily upon direct indications from the binary interface 111, 113, although such systems may also respond to signal overhead bytes and communications through a network management system.

A *prima facie* of obviousness thus has not been established. To establish prima facie obviousness of a claimed invention, all of the claim limitation must be taught or suggested by the prior art. ***In re Royka***, 490E.2d981, 180 USPQ 580 (CCPA 1974).

Furthermore, with respect to the combination of *Simeonidou et al.* and *Liu*, Applicant contends that *Liu*, in fact, teaches away the proposed combination. The *Simeonidou et al.* system involves a branching unit 7 that strictly manipulates signals in the optical domain to support wavelength or capacity reconfiguration between the trunk 4 and the spur 8 (see FIGs. 1 and 2) in the constrained topology of a submarine network.

By contrast, the *Liu* system, unconstrained by factors involved with a submarine network, employs an elaborate network made of an Operation Support System (OSS) 310 in communication with numerous switching nodes 301, 302, and 303. These switching nodes 301, 302, and 303 include both optical and electrical equipment (e.g., optical DXC, MUX, DEMUX) to support network restoration. *Liu* clearly states that each network node and junction, in addition to connections to other optical cross-connect switch (OCCS) nodes, maintains a link 322 to a central restoration site 310 (i.e., OSS) for providing message, mapping and status information.

To modify the *Simeonidou et al.* based on the teaching of *Liu* would require a full mesh configuration whereby multiple trunks may need to be deployed over water in the submarine network. However, given the geographical and environmental constraints, this implicates the

technical feasibility of such a modification. Accordingly, *Liu* provides a clear teaching away from the proposed combination.

The addition of *Vrenjak* does not mitigate this teaching away. Per the Abstract, *Vrenjak* discloses a data communication network management system that allows a user to establish rules which are pattern matched to attributes of incoming events, such as alarms, from network objects. When a match is found, the network management system retrieves a user prepared command SCRIPT file and substitutes attributes from the event into the command script. The command SCRIPT is then invoked to allow the user to program the system to automatically take predetermined actions upon the occurrence of network generated events specified by the user. *Vrenjak* does not contemplate use in the context of a submarine network.

The underlying system in *Simeonidou et al.* (per Abstract) requires an optical communication system in which the branching unit has an optical switch and an optical multiplexer having a number of loop back optical paths which pass through the switch. However, the network management system of *Vrenjak* (FIG. 1) manages network objects, such as modems and multiplexers (col. 2: 49-54); from technical standpoint, these networking objects are not intended to operate in optical cable system. This is consistent with the fact that *Vrenjak* fails to disclose use of any optical component or system. By contrast, the reconfigurable branching unit in the *Simeonidou et al.* is expressly designed for an optical communications system. In view of foregoing, the modification of *Simeonidou et al.* based on the teachings of *Vrenjak* is suspect, devoid of any factual or legal basis.

Accordingly, Applicant respectfully requests withdrawal of the obviousness rejection.

Turning to newly added claims 30 and 31, claim 30, which depends indirectly from claim 1, recites "wherein the restoration information is based on service level agreement (SLA) parameters." New claim 31, dependent on new claim 30, includes the features of "wherein the

SLA parameters are pre-determined and prioritized, and physical connections corresponding to higher priority SLA parameters are restored before physical connections corresponding to lower priority SLA parameters." The above claims are fully supported by the Specification; for example, page 9, paragraph [29]. In addition to the reasons for allowability proffered above with respect to claim 1, Applicant submits that these features are not taught by the art of record.

Therefore, the present application, as amended, overcomes the rejections of record and is in condition for allowance. Favorable consideration is respectfully requested. If any unresolved issues remain, it is respectfully requested that the Examiner telephone the undersigned attorney at (703) 425-8508 so that such issues may be resolved as expeditiously as possible.

Respectfully Submitted,

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